CLAIMS

What is claimed is:

1. A method for automatically generating and sending a Short Message Service (SMS) message to a subscriber in a mobile communications network in response to a change in the location of the subscriber, the method comprising:

(a) receiving a plurality of mobile call signaling messages associated with a subscriber that has changed location and roamed away from or outside of the geographic area serviced by the subscriber's home location register (HLR);

(b) correlating the mobile call signaling messages based on at least one parameter in the mobile call signaling messages;

(c) generating a change in location indication message based on parameters extracted from the correlated call signaling messages;

(d) sending the change in location indication message to a short message service center (SMSC);

(e) in response to receiving the change in location indication message by SMSC, generating an SMS message intended for the subscriber; and

(f) sending the SMS message to the subscriber.

2. The method of claim 1 wherein one of the mobile call signaling messages is a Mobile Application Protocol (MAP) Update Location Request message.

3. The method of claim 1 wherein one of the mobile call signaling messages is a MAP Insert Subscriber Data message.

4. The method of claim 1 wherein one of the mobile call signaling messages is a MAP Update Location Response message.

5. The method of claim 1 wherein one of the mobile call signaling message parameters used to generate the change in location indication message is a Home Location Register Identifier (HLR ID).

6. The method of claim 1 wherein one of the mobile call signaling message parameters used to generated the change in location indication message is a Visitor Location Register Identifier (VLR ID).

7. The method of claim 1 wherein one of the mobile call signaling message parameters used to generate the change in location indication message is a Mobile Identification Number (MIN), Mobile Directory Number (MDN) or Mobile Subscriber ISDN (MSISDN) number.

8. The method of claim 1 wherein one of the mobile call signaling message parameters used to generate the change in location indication message is an International Mobile Station Identity (IMSI) number.

9. The method of claim 1 wherein one of the mobile call signaling message parameters used to generate the change in location indication message is an MSC ID.

10. The method of claim 1 wherein one of the mobile call signaling message parameters is a date and time either extracted from one of the mobile call signaling messages or generated by a message processing platform the receives the mobile call signaling messages.

11. The method of claim 1 wherein the SMS message is a message welcoming or greeting the subscriber or any other type of message a mobile communications network operator desires to send to a subscriber.

12. The method of claim 1 wherein the SMS message includes at least one of: an advertisement, a weather report, hotel information, or any other information that a mobile

communications network operator wishes to send to the subscriber.

13. The method of claim 1 wherein correlating the mobile call signaling messages includes correlating the mobile call signaling messages based on a Dialogue ID in the mobile call signaling messages.

14. A method for automatically generating and sending a short message service (SMS) message to a subscriber in a mobile communications network in response to a change in the location of the subscriber, the method comprising:

(a) receiving a plurality of mobile call signaling messages associated with a subscriber that has changed location and roamed away from or outside of the geographic area serviced by the subscriber's Home Location Register (HLR)

(b) correlating the plurality of mobile call signaling messages;

(c) combining parameters extracted from the mobile call signaling messages to generate an SMS message intended for the subscriber; and

(d) sending the SMS message to the subscriber.

15. The method of claim 14 wherein one of the mobile call signaling messages is a Mobile Application Protocol (MAP) Update Location Request message.

16. The method of claim 14 wherein one of the mobile call signaling messages is a MAP Insert Subscriber Data message.

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17. The method of claim 14 wherein one of the mobile call signaling messages is a MAP Update Location Response message.

18. The method of claim 14 wherein one of the mobile call signaling message parameters used to generate the change in location indication message is a Home Location Register Identifier (HLR ID).

19. The method of claim 14 wherein one of the mobile call signaling message parameters used to generate the change in location indication message is a Visitor Location Register Identifier (VLR ID).

20. The method of claim 14 wherein one of the mobile call signaling message parameters used to generate the change in location indication message is a Mobile Identification Number (MIN), Mobile Directory Number (MDN) or Mobile Subscriber ISDN (MSISDN) number.

21. The method of claim 14 wherein one of the mobile call signaling message parameters used to generate the change in location indication message is an International Mobile Station Identity (IMSI) number.

22. The method of claim 14 wherein one of the mobile call signaling message parameters used to generate the change in location indication message is an MSC ID.

23. The method of claim 14 wherein one of the mobile call signaling message parameters used to generate the change in location indication message is a date and time extracted from one of the mobile call signaling messages or generated by a message processing platform that receives the mobile call signaling messages.

24. The method of claim 14 wherein the SMS message is a message welcoming or greeting the subscriber, or any other message that a mobile communications network operator desires to send to a subscriber.

25. The method of claim 14 wherein correlating the mobile call signaling messages includes correlating the mobile call signaling

messages based on a Dialogue ID in the mobile call signaling messages.

26. A method for correlating mobile call signaling messages transmitted between a home location register (HLR) and a visitor location register (VLR) in response to a change in location of a subscriber, the method comprising:

(a) receiving a plurality of mobile call signaling messages transmitted between an HLR and a VLR in response to a change in location of a mobile subscriber;

(b) correlating the mobile call signaling messages based on one or more parameters in the mobile call signaling messages; and

(c) storing the mobile call signaling messages in mobile call location update records.

27. The method of claim 26 wherein correlating the mobile call signaling message based on one or more parameters in the mobile call signaling messages includes correlating the mobile call signaling messages based on a dialogue ID contained in the mobile call signaling messages.

28. The method of claim 26 comprising comparing an HLR ID and a VLR ID in each mobile call signaling message and determining whether a subscriber is roaming in a foreign network in which

the subscriber has not previously registered with a VLR based on the comparison.

29. The method of claim 27 comprising, in response to determining that the subscriber is roaming in a foreign network in which the subscriber is not previously registered with a VLR, continuing correlation processing for the mobile call signaling messages.

30. The method of claim 27 comprising, in response to determining that the subscriber is not roaming in a foreign network in which the subscriber is not previously registered with a VLR, stopping correlation processing for the mobile call signaling messages.

31. The method of claim 26 wherein storing the mobile call signaling messages in mobile call location update records comprises, in response to receiving each of the mobile call signaling messages:

(a) determining whether a mobile call location update record is active;

(b) in response to determining that a mobile call location update record is active for the message, storing the message in the mobile call location update record; and

(c) in response to determining that a mobile call location update record is not active for the message, creating a

new mobile call location update record and storing the message therein.

32. The method of claim 26 comprising, in response to completing a mobile call location update record, generating a change in location indication message and sending the change in location indication message to a short message service center.

33. The method of claim 26 comprising for each mobile call change in location update record, in response to failing to receive all of the mobile call signaling messages to complete the mobile call change in location update record within a predetermined time period, discarding the mobile call change in location update record.

34. A system for automatically generating and sending a short message service (SMS) message to a subscriber in a mobile communications network in response to a change in the location of the subscriber, the system comprising:

(a) a first network element adapted to receive a plurality of mobile call signaling messages associated with a subscriber that has changed location and roamed away from or outside of the geographic area serviced by the subscriber's home location register (HLR);

(b) a message processing platform operatively associated with the first network element, the message processing platform being adapted to correlate and examine parameters contained within the mobile call signaling messages and to subsequently generate and send a change in location indication message based on the parameters; and

(c) a Short Message Service Center (SMSC) operatively associated with the message processing platform, the short message service center being adapted to:

(i) receive and process the change in location indication message;

(ii) generate an SMS message intended for the subscriber; and

(iii) send the SMS message to the subscriber.

35. The system of claim 34 wherein the first network element is a signal transfer point (STP).

36. The system of claim 34 wherein the first network element is a signaling gateway routing node.

37. The system of claim 34 wherein the first network element is a message observation and generation system.

38. The system of claim 37 wherein the message observation and generation system is coupled to an HLR.

39. The system of claim 34 wherein the first network element is a visitor location register (VLR).

40. The system of claim 34 wherein the first network element is a home location register (HLR).

41. The system of claim 34 wherein the owners or operators of the subscriber's HLR and the first network element are not the same.

42. The system of claim 34 wherein the message processing platform is contained within the first network element.

43. The system of claim 34 wherein the message processing platform is an external computing workstation that is communicatively coupled to the first network element.

44. The system of claim 34 wherein the message processing platform includes a message correlator/generator for correlating the mobile call signaling messages and for generating the change in location indication message.

45. A system for automatically generating and sending a Short Message Service (SMS) message to a subscriber in a mobile communications network in response to a change in the location of the subscriber, the system comprising:

(a) a first network element adapted to receive a plurality of mobile call signaling messages associated with a subscriber that has changed location and roamed away from or outside of the geographic area serviced by the subscriber's home location register (HLR); and

(b) a message processing platform associated with or coupled to the first network element, the message processing platform being adapted to correlate and examine parameters contained within the mobile call signaling messages and subsequently generate and send a short message service (SMS) message to the subscriber.

46. The system of claim 45 wherein the first network element is a signal transfer point (STP).

47. The system of claim 45 wherein the first network element is a signaling gateway routing node.

48. The system of claim 45 wherein the first network element is a visitor location register (VLR).

49. The system of claim 45 wherein the first network element is an HLR.

50. The system of claim 45 wherein the first network element is a message observation and generation system.

51. The system of claim 50 wherein the message observation and generation system is coupled to an accounting and billing system for generating bills based on the mobile call signaling messages.

52. The system of claim 51 wherein the owners or operators of the subscriber's HLR and the first network element are not the same.

53. The system of claim 45 wherein the message processing platform is integral with and contained within the first network element.

54. The system of claim 45 wherein the message processing platform is an external computing workstation that is communicatively coupled to the first network element.

55. The system of claim 45 wherein the message processing platform includes a message correlator/generator for correlating the MAP messages and for generating the change in location indication messages.

56. The system of claim 45 wherein the message correlator/generator is adapted to correlate the MAP messages based on a Dialogue ID in the MAP messages.

57. A system for generating a message in response to a change in location of a mobile subscriber, the system comprising:

(a) a signaling node for receiving and copying selected mobile application part messages (MAP) transmitted between a home location register and a visitor location register in response to a change in location of a mobile subscriber; and

(b) a message processing platform operatively associated with the signaling node for receiving the copies of the selected MAP messages, correlating the selected MAP messages, and generating a change in location indication message based on the correlated MAP messages.

58. The system of claim 57 wherein the message processing platform is adapted to send the change in location indication message to a short message service center.

59. The system of claim 57 wherein the message processing platform is adapted to send the change location update message to a presence server.